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ICF TECHNOLOGY INCORPORATED

MEMORANDUM

To: Paul LaCourreye, U.S. Environmental Protection Agency

From: Jo Ann Weber, ICF Technology, Incorporated

Date: December 23, 1987

Subject: Review of the Preliminary Assessment of the Phelps Dodge Historical Smelter prepared by Louis Parsons, of the Arizona Department of Environmental Quality, dated October 1986.

EPA ID#: AZD981680242

cc: Tom Beer, Ecology and Environment, Incorporated JWB
Martha Walters, Ecology and Environment, Incorporated MW

Summary

The Phelps Dodge Historical Smelter (Phelps Dodge Bisbee Smelter) site is located in the southeast corner of Arizona, at the Brewery Gulch Interchange of State Highway 92 in Bisbee, Arizona. The approximately ten-acre site of the former copper smelter was operated and is currently owned by Phelps Dodge Corporation, Phoenix, Arizona. The site houses a historic museum which is open to the public.

In October 1986, the Arizona Department of Environmental Quality (ADEQ) identified the Phelps Dodge Bisbee Smelter site as a potential source for the elevated lead levels found in surface soil samples in Old Bisbee, the oldest section of Bisbee, where the site is located. In addition, slightly elevated levels of lead found in the blood of several children from Old Bisbee could potentially be caused by ingestion of lead-contaminated soils.

The ADEQ collected surface soil samples in Bisbee in 1986. The amount of lead in soil samples ranged from an estimated background level of 50 ppm to a maximum of 1600 ppm in a sample collected less than one-half mile from the Phelps Dodge Historical Smelter site. However, elevated lead levels were found near other former smelter sites in Old Bisbee. Soil samples were not collected from the Phelps Dodge Historical Smelter property.

Three furnaces at the Phelps Dodge Bisbee Smelter daily produced 40 to 54 tons of almost pure copper from 1887 to July, 1904. One or two furnaces were in operation from 1880 to 1887 and processed an unknown amount of copper ore. The smelter has been inactive since July 1904, and was subsequently disassembled and moved to Douglas, Arizona. Lead, arsenic, and possibly other metals, and particulates were probably emitted from the stacks of the furnaces during the

years of operation. The Lavender Pit, an on-site open pit excavated in the 1930s and 1940s is reportedly located where the former smelter operation stood.

RCRA Status

The smelter at the Phelps Dodge Bisbee facility has been inactive since the early 1900's, and was therefore, not regulated under RCRA. The facility is currently inactive and is not regulated under RCRA.

HRS Factors

According to personnel at the ADEQ, lead, arsenic and particulates were probably emitted from stacks of the Phelps Dodge Bisbee Smelter and numerous other smaller smelters in operation during the late 1800's in Old Bisbee. Although an observed release of contaminants to the air is not possible to document, elevated levels of lead are documented in local surface soil samples.

The Preliminary Assessment indicates that the surface water is not used. Most of the approximately 8500 residents of Bisbee use municipal water which is drawn from wells approximately eight miles south of the site. Shallow domestic water wells, 20 to 60 feet deep, may be used by several resident of Old Bisbee as a potable water source.

Recommendation/Justification

The Arizona Department of Environmental Quality recommended that the following samples be analyzed for lead, arsenic and other metals:

1. An unspecified number of soil samples from Old Bisbee collected via a systematic grid.

2. Soil samples collected from various parts of Bisbee to establish metal background levels.

3. Composited soil samples collected from residential yards, if requested by residents with children under five years of age.

4. Water samples collected from domestic wells used in Old Bisbee, if any.

5. Air samples collected at unspecified locations in order to further define the metals' migration routes to target populations.

FIT does not concur with the recommendation for further action under CERCLA at the Phelps Dodge Historical Site for the following reasons:

- Although surface soils near the site contain elevated levels of lead, the site probably would not be eligible for inclusion in the National Priorities List. This is because of the low target population, if any, of residents who use the shallow ground water as a source of potable water, and the lack of uses for the surface water. Furthermore, attribution of lead-contaminated soils to this specific site may be difficult to document because numerous other smelters operated in Old Bisbee in the late 1880s.

- The Arizona Department of Health Services, Center for Disease Control Division, and the Arizona Department of Environmental Quality are the lead state agencies.

FIT recommends no further action under CERCLA for the Phelps Dodge Historical Smelter Site.